Appendix

Overview

As already mentioned, this appendix in a sense constitutes the bulk of this thesis. In this section I will give a list of the papers and other things included, what they cover and what my involvement in each of them has been.

Please note that, unlike the rest of the thesis, these papers are identical to those in the original version and that some of them have since been published or submitted to various journals. For most purposes the newer versions are probably more useful than the ones included here.

1. Christensen-Dalsgaard, Schou, and Thompson: "A comparison of methods for inverting helioseismic data," 1990, *Mon. Not R. Astr. Soc.*, **242**, 353-369. This paper describes a number of popular 1-dimensional inversion methods and compares them in terms of averaging kernels and computational complexity. This paper was actually written while working on my masters degree, but has been included for completeness as it contains a description of a number of 1-dimensional methods. This paper was written mainly by the other two co-authors. My main contribution was the calculations in connection with the optimally localized averages method and general discussions.

2. Schou, Christensen-Dalsgaard, and Thompson: "The resolving power of current helioseismic inversions for the Sun's internal rotation," 1992, *Ap. J.*, **385**, L59-L62. This paper introduces the concept of 2-dimensional averaging kernels and describes how the previously used 1.5-dimensional inversions averaged the true solar rotation rate. Most of the calculations and writing was by me.

3. Schou, Christensen-Dalsgaard, and Thompson: "On comparing helioseismic 2-d inversion methods" 1993, to be submitted. This paper is a detailed description of 1.5- and 2-dimensional inversion methods. Again, the concept of averaging kernels is developed, and a large number of different aspects of the inversions are discussed. A comparison of the different methods is also made. The majority of the calculations and writing was done by me.

4. Schou and Brown: "Generation of artificial helioseismic time-series" 1993, to be submitted. This paper describes the program we have developed for generation of artificial helioseismic time-series. Some details of how the data is generally reduced is presented. The program was originally written by Brown, but has been extensively modified by me to include the treatment of the crosstalks presented, among other things.

5. Schou: "On the estimation of mode parameters from helioseismic time-series," 1993, to be submitted. This paper contains a description of the algorithm used in the program I have used for the analysis of the Fourier Tachometer data. Also many of the various diagnostics and shortcomings of the program are discussed. As indicated by the author list, this paper was written by me.

6. Bachmann, Schou, and Brown: "Observations of intermediate degree solar oscillations: April-June, 1989," 1993, submitted to *Ap J.*. This paper contains a description of some parts of the analysis of the aj89 dataset and some of the results obtained. This paper was written by Bachmann, describing work by all the authors.

7. Danish Resume.